Chapter 2

FINANCIAL LIBERALIZATION AND BANKING CRISES: NEW DIRECTIONS IN LITERATURE

2.1: The Contemporary Scenario:

During the decade of the 1990s, several countries experienced financial crises. The Nordic banking crisis in early 1990s, collapse of the European Exchange Rate Mechanism (ERM) in 1992, devaluation of the Mexican Peso in 1994 and an abrupt halt of the Asian miracle in 1997 were some large scale episodes of international monetary instability. In the aftermath of the Asian crisis, faraway countries such as Russia and Brazil became victims to the financial contagion. The Russian banking system was disrupted by the devaluation of the Ruble in August 1998 while the Brazilian Real was devalued in 1999. Currency crises also occurred in Turkey in early 2001 and Argentina in December 2001. Thus in a span of about ten years banking and Balance of Payments (BOP) crises swept across the length and breadth of the global economy sparing neither developed nor developing economies. The most recent phenomenon of crisis occurred in the USA in 2008. The collapse of top five US Investment Banks known to be the pillars of the American economy, led to the breakdown of trust in inter-bank and inter-institutional lending thus spreading financial contagion. This caused a ripple effect across the financial markets and global banking systems. Over time, on account of such developments there has been a growing awareness about the financial crises and their repercussions.
In an attempt to minimize the cascading effects of financial crisis, theoretical and empirical research spanning over a decade, has largely focused on their identification, causes and remedial measures for early prevention. Banking crisis, one of the most prominent forms of financial crisis, is not an unknown phenomenon. Such events have occurred in the past during the Industrial Revolution and the Great Depression. But the distinctive feature of modern-day banking crises relates to the liberalized scenario along with its allied effects. Banking crises are more costly and have a larger duration than currency crises. To assess the soundness of banking systems, several research issues have emerged in the surfacing global scenario particularly in the context of developing economies. Among the various topics being widely investigated, three major issues relating to the development of an Early Warning System (EWS) for prediction of banking crisis, Macro-Prudential Analysis (MPA) of bank loan quality and conditional volatility of bank stocks have assumed special significance. These research issues broadly deal with the role underplayed by macroeconomic and global financial conditions in impacting the financial health of banks in liberalizing economies.

2.2: Financial Liberalization and Financial Crisis

Modern financial crises may assume various forms such as currency crises, banking crises or twin crises. The theoretical literature on currency crises is centered on the archetype of the three generations of currency crisis models. The first generation crisis model epitomized by Krugman (1979) and Flood and Garber (1984) described the currency crises of 1970s and 1980s in Latin America. The Second Generation model

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1 In the Great Depression, 9000 banks failed during the decade of the 1930s. By 1933, depositors saw $140 billion disappear through bank failures.
developed by Obstfeld (1984) could address the European Monetary System’s crisis in 1992. However, based their predictions on the first and second generation models, the renowned rating agencies like Standard & Poor and Moody’s missed the signals of the Asian financial crisis of 1997. The third generation crisis models which developed in response to the Asian crisis and demonstrated how economies with strong public finances and remarkable growth performances could collapse also stressed the intimate connection between banking and currency crisis and addressed problems of contagion of crises and herd behavior.

During the 1980s and 1990s most of the countries that went for financial liberalization experienced banking crises at some point of time. Almost two-thirds of IMF member countries experienced significant banking problems between 1980-1996 (Lindgren, Garcia & Saal, 1996). Since late 1970s, there have been about 117 systemic banking crises in 93 countries and 51 borderline (non-systemic) banking crises in 45 countries (Caprio & Klingebiel, 2003, p 1). The explosion of banking crises in recent times, “is a sobering reminder that the modern world is far from financially stable” (Caprio, 1998, p5).

It is largely believed that twin crisis episodes, a combination of banking and currency crises, which occurred in South East Asia, Latin America, Turkey and Scandinavia, is more persistent in the environment of increasing financial integration and volatile movements in capital. Kaminsky & Reinhart (1999) found no evidence of twin crisis in the 1970s, but document close interlinkages between banking and currency crisis after financial liberalization in many countries since the 1980s. There are different views on
the causality between the two crises. While a weak banking sector may itself precipitate a currency crisis (Velasco, 1987; Obstfeld, 1994; Calvo, 1995; González-Hermosillo, 1996; Kaminsky & Reinhart, 1999; Miller, 1998 and Glick & Hutchinson, 2001), a speculative attack on the currency may also give rise to banking crisis (Obstfeld, 1984; Rojas-Suárez & Weisbrod, 1995; Miller, 1996 and Hagen & Ho, 2003b).

2.3 Banking Crisis and Associated Issues

The concerns related to banking crisis are multi-dimensional. These are documented in an extensive literature coverage extending over the last two decades in the context of both advanced and emerging economies.

**Varieties of banking crisis:** Systemic banking crisis is the collective failure of multiple banks that impairs so much of a banking system’s capital that the government is forced to intervene (Ergüngor & Thomson, 2005, p 2). Huge loan defaults wiped out extensive portions of capital of banking systems’ in the systemic banking crises of South East Asia, Latin America, Japan, Russia and Scandinavian countries. In a borderline or non-systemic banking crisis significant banking sector problems are present even though the entire banking sector may not be in distress. It is a localized crisis and amounts to a few individual bank failures. While poor macroeconomic performance lead to fundamental banking crisis, panic and multiple equilibria due to self-fulfilling expectations lead to bad equilibrium and cause self-fulfilling banking crisis (Fontenla & González, 2007).

In the liberalized scenario, monopoly rents have disappeared and banks have resorted to risky lending activities and off-balance sheet transactions to compensate for the losses to remain in the banking business. An individual bank may fail when any of these risks or a
combination of such risk actually destroys the net worth of that bank. Some of these risks are liquidity risks, credit or default risk (including credit deterioration risk, spread risk, migration risk or downgrade risk), market risk (interest rate risk, exchange rate risk and equity risk), operational risk, off-balance sheet risk, systemic risk, miscellaneous risks (legal risk, political risk, reputation risk and Settlement or Herstatt risk). Among the multiple risks, credit and market risks are at the core of banking business especially in Emerging Market Economies (EMEs) while in more advanced economies, banks are also exposed (increasingly) to off-balance sheet risks due to their large exposure in financial derivatives. Some of these risks are closely interrelated. For example there is a strong correlation between market risk and credit risk. Global banking history is replete with examples of failures of banks and Financial Institutions (FIs) as these risks materialize (Table 2.1). A large number of these institutions have disintegrated due losses in derivative activities, overexposure of loans in sensitive sectors and currency risks.

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2 In the sub-prime crisis in the US described as the worst financial crisis since the Great Depression of the 1990s by president-elect Barrack Obama, derivatives have proved to be weapons of mass financial destruction
**Table 2.1: Collapses of Major Banks and Financial Institutions**

<table>
<thead>
<tr>
<th>Name of the bank or FI /Country / Date of collapse</th>
<th>Cause of crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Franklin National Bank / USA/ 1974</td>
<td>Mismanagement and fraud, involving losses in foreign currency speculation and poor loan policies.</td>
</tr>
<tr>
<td>2 Bankhaus Herstatt / West Germany / June 1974</td>
<td>Settlement risk in cross-currency transactions.</td>
</tr>
<tr>
<td>3 Continental Illinois National Bank, USA / 1982</td>
<td>Credit problem turned into a liquidity problem that jeopardized not only the survival of the bank itself, but also the financial system.</td>
</tr>
<tr>
<td>4 Schroder, Munchmeyer und Hengst / Germany / 1983</td>
<td>Bad loans disbursed to an insolvent construction machinery enterprise, IBH in spite of knowledge of it's shaky finances.</td>
</tr>
<tr>
<td>5 Salomon Brothers / USA / 1991</td>
<td>Collapse of Mortgage-Backed Securities after a fine of $290-billion from the US government when it attempted to corner the market for US treasuries through false bids in 1991.</td>
</tr>
<tr>
<td>6 Bank of Credit and Commerce International / UK / 1991</td>
<td>Regulators from US and UK closed all branches of BCCI and froze its assets after it was found that the bank had almost $13-billion in unaccounted money.</td>
</tr>
<tr>
<td>7 Toyo Sogo Bank, Japan / 1991</td>
<td>Excessive concentration of lending.</td>
</tr>
<tr>
<td>8 Barings Bank / UK / 1995</td>
<td>Unsustainable trading losses on the futures contracts on the Singapore International Monetary Exchange. An extreme example of operational risk and lack of adequate risk management.</td>
</tr>
<tr>
<td>9 Daiwa Bank / Japan / 1995</td>
<td>Losses from the activities of a rogue trader at the New York ranch of the office.</td>
</tr>
<tr>
<td>10 LTCM/ USA / 1998</td>
<td>The Hedge fund used trading strategies such as fixed income arbitrage, statistical arbitrage, and pairs trading, combined with high leverage.</td>
</tr>
<tr>
<td>11 Credit Suisse First Boston / USA / 1998</td>
<td>Losses sustained on the currency forwards on the Moscow Interbank Currency Exchange. This was an example of losses due to country risk.</td>
</tr>
<tr>
<td>12 Countrywide Financial / USA/ August 2007</td>
<td>Largest mortgage lender with large number of delinquent sub-prime mortgages.</td>
</tr>
<tr>
<td>13 Socieite General/ USA/ 2008</td>
<td>Fraudulent transactions in early 2008 (unrelated to the sub-prime fiasco).</td>
</tr>
<tr>
<td>14 Bear Sterns/ USA/ 2008</td>
<td>First major casualty of the sub-prime crisis. Bear Stearns failed as the bank no longer could stand behind the complex agreements it had with other financial institutions.</td>
</tr>
<tr>
<td>15 Fannie Mae &amp; Freddie Mac/ USA</td>
<td>Mortgage lenders with large number of delinquent sub-prime mortgages.</td>
</tr>
<tr>
<td>17 Lehman Brothers &amp; Merrill Lynch/ USA/ September 2008</td>
<td>Small banks lent their money to borrowers with dubious credit histories and repackage them as tradable securities to Lehman Brothers &amp; Merrill Lynch. When borrowers defaulted, market for these securities collapsed.</td>
</tr>
<tr>
<td>18 AIG/ USA/ 2008</td>
<td>USA’s largest insurance company’s huge accumulation of portfolio of structured securities and credit default swaps, posed a serious threat to the entire financial system.</td>
</tr>
<tr>
<td>19 Washington Mutual (WAMU) and Wachovia Corp / USA/ September 2008</td>
<td>Foreclosures and consumer defaults damaged the housing market and affected these financial institutions.</td>
</tr>
</tbody>
</table>

Source: Shellagh & Heffernan (2005, p 271-290) & various newspaper reports
Financial liberalization and banking crisis: The link between banking crisis and financial liberalization was noted as early as 1985 in a paper by Diaz-Alejandro in the context of the Chilean crises. This idea was supported by a host of other researchers. ‘Other things remaining equal the risk of bank insolvency and, more generally of systemic banking crisis may be greater in liberalized financial systems’ (Demirguc-Kunt & Detragiache, 1998a, p 8). Caprio and Klingebiel (1996), Niimi (2000), and Gruben, Koo and Moore (2003) conclude that banks are much more likely to fail in a liberalized regime than under financial repression. Gavin & Hausman (1998), Mehrez & Kaufman (1999), Glick & Hutchinson (2001), Eichengreen & Arteta (2000) and Noy (2004) find that financial liberalization significantly increases banking fragility. Kaminsky & Reinhart (1999) find 70% of banking crisis was preceded by recent financial liberalization and the probability of banking crisis conditional on the occurrence of financial liberalization was greater than the unconditional probability of banking crisis. Economists opine that banking crisis do not occur immediately but surfaces within a few years after financial liberalization (Demirguc-Kunt et al 1998b and Daniel and Jones, 2004).

Wilmarth (2003, p 1-3) sums up the various stages that indicate how banking crisis occurs in the aftermath of financial deregulation. Initially, liberalization imposes competitive pressures on banks and also increases the lending and investment opportunities of banks. The increased availability of credit fuels an economic boom leading to surging asset prices thus encouraging creditors to provide additional funds due to rising collateral values. Asset prices thus overshoot and reach levels inconsistent with
economic fundamentals. The bubble bursts when investors realize this and there is a panic to liquidate investment positions. This results in falling asset prices creating adverse macroeconomic effects. The continuously declining asset prices and rise in Non-Performing Loans (NPLs) increases the financial losses of banks. The situation creates a crisis of confidence among depositors and leads to a systemic crisis eventually. Finally, the government injects massive amount of funds to recapitalize banks and protect the depositors.

**Duration and huge costs of banking crisis:** Identifying the end of a banking crisis is “one of the more difficult unsolved problems in the empirical crisis literature” (Goldstein, Kaminsky and Reinhart, 2000). They define end of banking crisis as heavy government intervention while IMF(1998) and Bordo, Eichengren, Klingebiel & Peria (2001) considers a banking crisis to have ended when annual output growth returns to its pre-crisis trend.

Direct resolution costs of banking crisis involve fiscal costs, unlimited deposit guarantees, open-ended liquidity support, repeated recapitalization, debtor bail-outs and regulatory forbearance comprising huge amounts of public money. Banking crisis also entails indirect cost such as credit crunch (Rajan & Zingales, 1998), foregone economic output (Bordo et al 2001 & DKD 2005, p 23), burden to depositors in the form of wider interest spreads due to the pressure of bad loans (Caprio & Klingebiel, 1996 and Fisher & Smaoui, 1997, p 2-3) inflation tax., cost of maintaining zombie borrowers (Ergungor & Thomson, 2005, p 1) and contagion effects in neighboring countries (Bordo et al , p
In extreme situation banking crisis leads to currency crisis and the economic contraction that follows takes a long time to recover. (Joyce & Settli, 2008, p 5). Further it is also costly and counterproductive to keep unhealthy banks alive through artificial methods (El-Khoury, 1996, p 1).

**Determinants of banking crisis:** Notable studies on the causes of banking crises include Balino and Sundarajan (1991), Kaminsky et al (1999), Demirguc Kunt & Detragiache (1998a & 1998b), Eichengreen & Rose(1998), Hutchinson & McDill (1999). Bank vulnerability turns into severe problems when there are either macro or micro shocks. An endogenous problem such as a bad bank going under and thereby affecting other banks would be a micro factor. A macro shock on the other hand is typically exogenous in origin and more systematic in effect. The ‘proximate causes’ which explain the incipient crises can be categorized into macroeconomic, institutional and bank-specific factors.

Macroeconomic factors have played a very significant role in the systemic banking crisis in the 1990s. Credit booms, economic recession, inflation, exchange rates, capital reversals and global interest rates can impact the financial health of banks. Credit booms are typically associated with financial liberalization. Strong credit growth observed in many countries prior to banking crisis (Argentina-1980, Chile-1982, Sweden, Norway, Finland-1992, Mexico-1994 and Thailand, Indonesia, Korea -1997. A credit boom is defined in various ways: a) annual % change in ratio of claims–to-private sector (Kaminsky & Reinhart, 1999) b) annual % change in real private credit (Demirguc & Detragiache, 1998a) and c) actual credit in excess of equilibrium or trend (Torrones, 1997).

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3 Boyd, Gomis, Kwak and Smith (2001, p 2) estimate the real cost of banking crisis as the output lost during the time taken by the economy to recover to its pre-crisis trend output level.

In recent years, capital flows have flooded the emerging markets and increased the capacity of domestic banks to lend (Mckinnon & Pill, 1996 and Haque, Mathiesson & Sharma, 1997). At the expense of deteriorating credit quality, there has been a high degree of concentration of loans in very sensitive sectors like real estate, leading to asset price bubble followed by bust and eventually the collapse of the banking sector (South East Asian financial crisis in 1997).

Adverse output shocks during recession, affect the borrowers ability to repay loans thereby increasing banks’ NPLs. This is one of the prime causes of systemic banking crises. Many studies have found that recessions precede banking crisis (Calomiris and Gorton, 1991; Kaminsky et al, 1996; Demirguc et al, 1998a; Eichengreen and Arteta, 2000 and Borio and Lowe, 2002)

Misalignment in market determined exchange rates expose banks to both direct and indirect currency risks such as enhanced payment on foreign loans when nominal exchange rates depreciate and increase in current account deficits as real exchange rates appreciate In case of unhedged foreign exposures the risk amplifies. As liquid domestic liabilities are converted into foreign currency, central bank recapitalizes the banks with

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4 Torrones et al (2004) has also distinguished between credit booms and rapid credit expansion. A credit expansion is converted into a credit boom when it exceeds the standard deviation of that countries’ credit fluctuation by a factor of 1.75 around the Hodrick-Prescott filter trend. According to them a credit boom is unsustainable and eventually collapses.
funds by selling foreign exchange reserves eventually heading towards speculative attack on the currency with repercussions on the banking sector.

Foreign interest rates affect banking crisis in developing economies through a) an increase in the domestic interest rate to thwart capital outflows and increasing loan defaults b) increasing the cost of debt of borrowers who have borrowed extensively from foreign lenders (as seen during the Asian crisis) and c) decline in imports from higher income nations which can lead to or reinforce a banking crisis. In an innovative paper, Joyce & Settli (2008) find increase in LIBOR and US Treasury bill rate increase the probability of crisis and thus emphasize that banking crisis in emerging markets are not purely a domestic phenomena.\footnote{The impact of external variables such as foreign interest rates can be mitigated in the presence of strong capital controls. Bordo, et al (2001) \textit{op cit} find capital controls to be inversely related to banking crisis.}

In 2004, Bradford Delong predicted financial crises either in 2005 or 2006 or 2007 when USA and other developed countries that have been pursuing successful expansionary monetary policy at extremely low rates of interest (Eurozone 2%, USA 1%, Japan 0%) shall raise their interest rates.\footnote{\textit{Economic Times}, 07.05.2004} This has proved to be remarkably true. In the recent US sub-prime fiasco and global financial crisis, global economic imbalances and mis-pricing of risks in the financial system was encouraged by prolonged easy monetary policy and excess liquidity. A school of economic thought by John Taylor (2007) traces the subprime crisis to lax Federal policy during 2001-04 followed by substantial increases in the Fed Fund rate from mid 2004 to mid-2006.\footnote{‘It’s Rational Exuberance’, \textit{Economic Times}, 22.9.2008} Subsequently, from the second half of 2006 the delinquency rate in housing loans started rising significantly and house prices
collapsed. These facts provide evidence of strong correlation among interest rate cycle, mortgage lending cycle and housing cycle in the US. Apart from the macroeconomic factors, there are also bank specific factors generating crisis. These could be bad asset quality, concentration of loans in highly sensitive sectors, connected lending, unhedged interest rate exposures, operational inefficiency and fraud. Further, institutional factors like bank runs and deposit insurance, lack of central bank autonomy, political pressure and delayed policy response, government ownership of banks, banking concentration, weak regulatory and legal framework and poor performance of rating agencies may also precipitate banking crisis.

2.4: Major Directions of Research in the Contemporary Era of Globalization and their Relevance to the Banking Sector

Following the crises of the 1990s, the IMF has placed greater emphasis on strengthening its crisis prevention capabilities. One aspect of this work involves developing Early Warning Systems that assess future crisis vulnerability based on past crisis episodes. Recent IMF research on the subject has focused on identifying potential domestic broad-based macroeconomic and global indicators of banking sector vulnerability and assessing their predictive performance. At the insistence of the IMF and the world Bank, another emerging research area relates to the Macro-Prudential Analysis (MPA) of credit risk that encompasses quantitative information from Financial Stability Indicators (FSIs) such as NPL, Loan-loss provisions etc and a broader picture of economic and financial circumstances such as GDP growth, inflation, exchange rates etc. MPA assumes crucial significance in the contemporary scenario, as macroeconomic shocks have underlined some of the major systemic banking crisis around the globe in the 1990s. MPA is further
underpinned by stress testing exercises, which on an aggregate level demonstrates whether the loan portfolio has gained considerable ability to absorb macroeconomic shocks without endangering the banking sectors’ capital base. Recently some studies are also devoted to the examination of returns and volatility of bank stocks from different perspectives. This has assumed special significance in the context of Basel II implementation. All these areas of research have a particularly significant bearing on the banking sectors of emerging economies integrating with the global economy.

2.5 Financial Sector Reforms in India

The financially repressed regime in India in the early eighties featured regulated interest rates, directed credit, accumulation of huge Non-Performing Assets (NPAs), large regulatory pre--emptions in the form of Statutory Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR), current and capital account restrictions and barriers to entry of private players. The banking sector reforms undertaken during the initial period of the reform cycle formed an integral part of overall financial reforms. However, they were not in response to any severe banking disaster, but a ‘measured, gradual, cautious and steady process devoid of many flourishes that could be observed in other countries’ (Mohan 2005, p 1106). Some of the facets of financial sector reforms include phased interest rate deregulation, gradual reduction of statutory pre-emptions, increased freedom of choice of banks in determining the quantum of loans and their price, adoption of international best practices in prudential regulation and supervision and the transition to a more market-oriented system. Some other landmark characteristics of the financial reform package with likely associated effects on the banking industry include market-
determined exchange rates subject to close monitoring by the RBI, full current account convertibility, carefully sequenced capital account liberalization, foreign capital flows, and External Commercial Borrowings (ECBs).

A significant tenet of financial reforms is the interest rate channel which has become a key monetary policy transmission channel in India. In its landmark monetary policy in 1997-98, the RBI switched over to the broad-based Multiple Indicator Approach (MIA) comprising a shift from direct to indirect instruments of monetary control. In the new approach, Bank Rate was reactivated as a Monetary Policy Instrument (MPI) in April 1997. Two short term market rates, Repo Rate and Reverse Repo Rate which have become very active recently convey the message about the central bank’s assessment of monetary conditions on one hand and the effect of the cost of liquidity on interest rates on the other. After liberalization in India privatization of the banking industry has occurred by inducting private share through Initial Public Offerings (IPOs).

**Impact of reforms:** Banking reforms made a profound impact in improving the overall efficiency and stability of the banking sector as seen in the performance of the following parameters (Leeladhar, 2008). Bank profitability as measured by Return On Assets (ROA) increased from 0.4% in 1991-92 to a modest 0.99% in 2007-08. Gross NPAs as a proportion of gross advances declined to 2.4% during end-March 1997 to end-March 2008. The Capital Adequacy Ratio (CAR) was around 13.08% in March 2008.

The milestone achievement has been in the reduction of both stock and flow of NPAs. In a remarkable turnaround from the mid nineties when a bad loan crisis hung

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8 The MIA does not have any explicit intermediate target. It is based on a wide range of monetary and financial indicators.
9 Bank rate is linked to all other rates including RBI refinance rates. Variations in Bank Rate are matched by commensurate changes in Prime Lending Rate (PLR) and deposit rates of banks.
over the financial sector, NPAs of Indian SCBs have registered a decline in absolute numbers since 2002-03, underpinned by a strong recovery climate and favorable macroeconomic conditions.\textsuperscript{10} The Indian banks enjoy the impossible trinity of high credit growth, high spreads and better asset quality (Rammohan, 2007, p 1113-4). Though Public Sector Banks (PSBs) are still a dominant segment, controlling about three-fourths assets of the banking industry, PSBs with 100% government ownership now comprise only 10% of commercial bank assets compared to 90% at beginning of economic reforms (Reddy 2006, p 2). This is reflective of the growing presence of private banks in India.

\textbf{2.6: Financial Liberalization and Banking Fragility in India}

Though banking sector in an impressive turnaround has gradually achieved greater efficiency in the liberalized era, but economists argue that banking fragility has also been largely rampant in the Indian banking scenario since the early1990s. Financial liberalization has fostered greater competition among banks. In their efforts to maintain their market shares and profits banks resorted to risk-taking in their business ventures. Credit or default risk emerged as the predominant risk category for Indian banks. NPA as a percentage of gross advances for PSBs touched an all time high of 24.8% in 1994-95. Some studies point out NPAs of Indian banks is grossly understated and the banking distress in India is quite significant. CRISIL(2002) reported bad loans were actually 19% (Rs 1,30,000 cr), almost double the reported amount in March 2002.\textsuperscript{11} Mckinsey & Co. (2002) classified at least 35 banks of the Indian banking system as fragile and having a

\textsuperscript{10} Till date the recapitalization costs of restoring positive net worth of banks with huge stock of NPAs has cumulatively amounted to 1% GDP.

\textsuperscript{11} ‘CRISIL puts Bad Loan at 19% of Total Portfolio’, \textit{Economic Times,} 26.06.2002
negative net worth. Real level of NPAs can be placed at over 20% after making marginal allowance for evergreening (Muniappan, 2002). Warning bells for Indian banks and Financial institutions (FIs) were given regarding to their high level of NPAs by the World Bank(2003) also. While the risk of suffering from credit losses could increase as interest rates begin their upward journey, on account of evergreening practices, actual net NPA figures could be double the reported amounts.¹²

The broader literature on banking crisis contains plenty of comprehensive multi-country studies that take India in to consideration. Table 2.2 gives an account of the duration and nature of banking crisis in India as cited in these studies. So there is ample evidence of banking distress in India in the aftermath of economic liberalization particularly in the turbulent nineties.

Prior to 1991 with current and capital account restrictions monetary policy management did not pose any problem as interest rates were administratively fixed. As India became convertible on the current account, and liberalized its capital account in a carefully sequenced manner since the balance of payment crisis of 1991, capital flows have come to influence the conduct of monetary policy in India. In this context, liquidity management has proved to be quite difficult. Capital inflows lead to currency appreciation, loss of competitiveness of exports and attenuation of monetary control. Even sterilization of foreign exchange reserves may not be useful as it can lead to increase in interest rates and attracts greater capital flows.

¹² World Bank warns Banks, FIs of High NPAs¹², Economic Times 24.07.2003
### Table 2.2: Banking Crisis in India as given in Multi-country Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Period of Banking Crisis</th>
<th>Nature of Banking Crisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lindgren, Garcia &amp; Saal (1996) @</td>
<td>1991-present</td>
<td></td>
</tr>
<tr>
<td>Caprio &amp; Klingebiel (1999)*</td>
<td>1991-ongoing</td>
<td>Non-systemic (smaller and borderline)</td>
</tr>
<tr>
<td>Glick &amp; Hutchison (2001)</td>
<td>1993-97</td>
<td></td>
</tr>
<tr>
<td>Glick, Moreno &amp; Speigel (2001)$</td>
<td>1993-97</td>
<td></td>
</tr>
<tr>
<td>Caprio &amp; Klingebiel (2003)*</td>
<td>1993-ongoing (Recapitalization cost 4% GDP in 1999)</td>
<td>Non-systemic (smaller and borderline)</td>
</tr>
<tr>
<td>Hagan &amp; Ho (2003a)</td>
<td>1999 Q4 for window width=8Q, 12Q or 16Q (threshold=1.5%) 1984Q2 and 1999Q4 for window width=8Q, 12Q or 16Q (threshold=2.5%)</td>
<td></td>
</tr>
<tr>
<td>Boyd, Gomis, Kwak &amp; Smith (2004)!</td>
<td>1993-</td>
<td>Non-systemic</td>
</tr>
<tr>
<td>Laeven &amp; Valencia (2008)%</td>
<td>1993-</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

@ There was no banking crisis but significant problems. # The end date for the crisis is not certain, a four-year duration is assumed.
* Recapitalization cost estimated at 4% of GDP. Lowest GDP growth of 4.9% in 1993. The burden borne by depositors and borrowers in the form of wider interest rate spreads resulting from bad loans left on banks’ balance sheets are not included in the costs.
$ The Indian economy experienced a currency crisis in 1991 & 1995. ! The end-date of the crisis is not given. NPAs reached 11% in 1993–94. NPAs of the 27 public banks estimated at 20% in 1995. At the end of 1998 nonperforming loans estimated at 16% and at the end of 2001 they decreased to 12.4%. Nonperforming assets reached 11% in 1993–94. % Crisis still continuing in 1999. The growth rate actually increased in the crisis years.

Banks are exploring avenues to increase their capital base and maintain modest CAR levels. This has become of greater concern to banks as they are under pressure to implement Basel II. It is expected there will be greater demand for capital and to that end banks will rely more on equity capital.

#### 2.7: Rationale for the Present Study

The Indian banking sector, though improving in performance over the years, is also gradually being exposed to the globalized financial arena and therefore facing newer challenges of maintaining its resilience. The issue that assumes immense significance is
the understanding of the process which works towards strengthening the resilience or culminates into a crisis. Investigation of the factors underlying the process brings to the surface some major issues like development of a EWS for predicting future banking crisis, inherent systemic interlinkages between the macroeconomic conditions and aggregate loan quality of banks and overtime behavior of bank stocks in terms of conditional volatility, calendar anomalies and their macroeconomic sensitivity.

The existing literature reveals that despite the occurrence of banking crises in India as evidenced in the existing multi-country studies, the gap exists in the India specific study on apriori signal to banking crisis. This study addresses this issue to contribute to the literature. Though 100 percent accuracy in prediction cannot be guaranteed through this system it can at least give some indication about an impending crisis and can help in implementing proper remedial policy action. With the issuance of RBI guidelines on stress testing in 2006 and the lacuna in literature on any Macro prudential analysis on default risk in the Indian banking sector, this study finds justification in investigating the issue in the Indian context. The contemporary scenario featuring globalization, Basel norms and FII initiated voluminous capital flows is generating growing importance of the market behavior of bank stocks in India. The current literature appears to have overlooked the focus on the examination of some vital issues pertaining to the conditional volatility of bank stocks. This thesis makes an attempt to investigate bank stock behavior both theoretically and empirically to contribute to the literature. The next three chapters deal with these pertinent issues in three separate but interrelated essays.
Bibliography


Heffernan, Shellagh (2005), ‘Modern Banking in Theory and Practice’, John Wiley and Sons

Ho, Tai-kuang (2004), ‘How Useful Are Regime-Switching Models In Banking Crises Identification?’, 1-32 http://repec.org


Miller, Victoria (1998), "Domestic bank runs and speculative attacks on foreign currencies," Journal of International Money and Finance, Vol. 17(2), April , 331-338,


Ram Mohan T T (2007), ‘Banking Reforms in India; Charting a Unique course, Economic and Political Weekly, March 31- April 6, Vol XLII No. 13, 1109-1120


Terrones, Marco; Enrique Mendoza and Bennett Sutton (2004), ‘Are Credit Booms in Emerging Markets a Concern’, Chapter IV, World Economic Outlook, 147-166 http://www.imf.org

